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EXAMINER	
SASTRI, SATYA B	
ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
06/01/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/585,339	DYLLICK-BRENZINGER ET AL.	
	Examiner	Art Unit	
	SATYA B. SASTRI	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *English translation of JP 04100994*.

DETAILED ACTION

1. This office action is in response to application filed on 7/6/06. Claims 1-18 are now pending in the application.

Claim Objection

2. Claim 5 is objected for redundancy since the scope of the term "polynary" encompasses the scope of the term "binary". Additionally, the phrase 'selected from" may be inserted after the phrase "at least one" to make claim consistent with Markush format.

Claim 18 is objected to for lack of clarity in the claim language.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims are indefinite due to the word "obtainable" which should be replaced with "obtained." It is not understood how one can claim something which does not yet exist, but which is obtainable through some future step or means.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-5, 8, 10, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Culberton et al. (US 4,374,235) in view of Dames et al. (US 5,990,221).

The prior art to Culberton et al. disclosed anhydride-containing polymers derived from alkenyl succininc anhydride and vinyl monomers for use as epoxy curatives, thickeners, coating etc. (abstract). Disclosed vinyl monomers include olefins, styrene, olefins, alkyl vinyl ethers etc. Additionally, the prior art teaches that the monomers may be polymerized by bulk, emulsion or solution methods using organic peroxides as initiators at temperatures ranging between 50^{o} and 150^{o}C (col. 2, lines 5-69, col. 3, lines 15-18).

The prior art fails to disclose dispersions obtained by mini-emulsion polymerization method.

Dames et al. disclose preparation of aqueous polymer dispersions with bimodal particle size distribution. The disclosed mini-emulsion process affords emulsified droplets having a

particle size of 10 to 500 nm. The disclosed method extends polymerization of a variety of monomers, including dicarboxylic anhydrides, styrene and hydrocarbons with olefinic bonds in the presence of protective colloids (abstract, col. 2, lines 12-67, col. 3). By means of surfactants, such as ionic and non-ionic emulsifiers and/or protective colloids, the monomers are emulsified in droplet form in the aqueous phase (col. 3-4, col. 5, lines 1-5). The mini-emulsions further contain co-stabilizers such as hydrocarbons (col. 5, lines 4-25). Additionally, the prior art discloses that the surface active compound is dissolved in water and the co-stabilizer is dissolved in the monomers (col. 5, lines 54-67). The preparation of mini-emulsion may be accomplished via high pressure homogenizers or alternatively, with the aid of ultrasound (col. 5, lines 56-67, col. 6, lines 26-43).

Given that Culberton et al. disclose emulsion polymerization of monomers for preparing copolymers, i.e. aqueous dispersions that may be used in coatings and given that such a process must necessarily be in the presence of succinic anhydride as recited in presently cited claims, and given that the mini-emulsion process of Dames affords polymer dispersions with high solids and low viscosity (col. 1, lines 5-18, lines 55-61), it would have been obvious to one of ordinary skill in the art at the time the invention was made to prepare the aqueous dispersions of Culberton et al. by the mini-emulsion process of Dames and thereby arrive at the presently cited claims.

With regard to claim 14, it would have been obvious to one skilled in the art to optimize the polymerization conditions and arrive at the presently cited claim, absent evidence of criticality of the claimed range. Differences in concentration or temperature will not support patentability of the subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. MPEP 2144.05.

7. Claims 6, 9, 11, 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Culberton et al. (US 4,374,235) in view of Dames et al. (US 5,990,221) and Pfalz et al. (WO 01/29091).

The discussions with regard to Culberton et al. and Dames above in paragraph 6 are incorporated herein reference.

The prior art fails to disclose a mini-emuslion polymerization in the presence of water-soluble or water-swellable starch.

With regard to Pfalz et al. reference, it is noted that WO 01/29091 is used for date purposes while US 6,800,675 is used as the equivalent in the rejection set forth below.

The prior art to Pfalz et al. discloses emulsion copolymerization method in which starch in a preferably modified and/or derivatized form that are water soluble or swellable, optionally along with other emulsifiers or auxiliary agents is used to stabilize the emulsion (col. 1, lines 5-13, col. 4, lines 29-58). The emulsion polymerization of a variety of monomers conducted in the presence of starch and/or its degradation products afford aqueous dispersions that are cost beneficial (col. 1, lines 5-34, col. 2-3, bridging paragraph). In light of such benefit, and given that Dames discloses mini-emulsion processes in the presence of protective colloids, it would have been obvious to one of ordinary skill in the art to include degraded starch as protective colloid during polymerization of monomers as taught by Pfalz et al. in mini-emulsion processes of Dames to prepare Culberton et al. aqueous dispersions and thereby arrive at the presently cited claims.

With regard to the temperatures recited in claim 11, it would have been obvious to one skilled in the art to optimize the polymerization conditions and arrive at the presently cited claim, absent evidence of criticality of the claimed range. Differences in concentration or temperature will not support patentability of the subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. MPEP 2144.05.

8. Claims 1-5, 7, 8, 10, 14-16, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiba et al. (JPH4-100994, English translation) in view of Dames et al. (US 5,990,221) and Akimoto et al. (US 5,190,616).

Chiba et al. discloses a method of preparing aqueous emulsions in which styrene derivative and acrylic monomer are emulsion polymerized by free radical initiators in the presence of cationic water-soluble resin emulsion as a dispersant, and with the resulting cationic water-soluble resin emulsion as the dispersant, an alkyldiketene dimer is emulsified and dispersed under high pressure (claim 2, example 2).

The prior art fails to disclose (1) a mini-emulsion polymerization and (2) polymerization in the presence of alkenylsuccinic anhydride.

Dames et al. disclose preparation of aqueous polymer dispersions with bimodal particle size distribution. The disclosed mini-emulsion process affords emulsified droplets having a particle size of 10 to 500 nm. The disclosed method extends polymerization of a variety of monomers, including dicarboxylic anhydrides, styrene and hydrocarbons with olefinic bonds in the presence of protective colloids (abstract, col. 2, lines 12-67, col. 3). By means of surfactants,

such as ionic and non-ionic emulsifiers and/or protective colloids, the monomers are emulsified in droplet form in the aqueous phase (col. 3-4, col. 5, lines 1-5). The mini-emulsions further contain co-stabilizers such as hydrocarbons (col. 5, lines 4-25). Additionally, the prior art discloses that the surface active compound is dissolved in water and the co-stabilizer is dissolved in the monomers (col. 5, lines 54-67). The preparation of mini-emulsion may be accomplished via high pressure homogenizers or alternatively, with the aid of ultrasound (col. 5, lines 56-67, col. 6, lines 26-43).

Given that Chiba et al. disclose emulsion polymerization method for preparing copolymers, i.e. aqueous dispersions, and given that the mini-emulsion processes of Dames afford polymer dispersions with high solids and low viscosity (col. 1, lines 5-18, lines 55-61), it would have been obvious to one of ordinary skill in the art at the time the invention was made to prepare the aqueous dispersions of Chiba et al. by the mini-emulsion process of Dames.

Furthermore, the Akimoto reference is in an analogous field of endeavor as Chiba et al. and discloses sizing agents comprising copolymers and alkenylsuccinic anhydrides or alkylketene dimers as reactive sizing agent (abstract). The disclosure teaches that alkenylsuccinic anhydrides and alkylketene dimers are known reactive sizing agents usable in paper industry (col. 1, lines 10-15), in other words, the disclosure teaches that the two sizing agents are functionally equivalent and interchangeable. As such, it would have been obvious to one of ordinary skill in the art to utilize the functionally equivalent sizing agents, i.e. alkylketene dimers or alkenylsuccinic anhydride or a combination of both in preparing aqueous dispersions of modified Chiba et al. and thereby arrive at the presently cited claims. It is well settled that it is prima facie obvious to combine two ingredients, each of which is targeted by the prior art to be

useful for the same purpose. *In re Lindner* 457 F,2d 506,509, 173 USPQ 356, 359 (CCPA 1972). Also, case law holds that "it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In re Kerkhoven,* 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

With regard to the limitations "in the presence of alkenylsuccinic anhydride" and "in the presence of alkyldiketene" in the product claims, it is noted that patentability of said claims is based on the recited product and not on its method of production. Since the product in the instant claim is the same as product disclosed by modified Chiba et al., the claims are unpatentable even though the modified Chiba et al. product was made by a different process. In re Marosi, 710 F2d 798,802,218 USPQ 289, 292 (Fed. Cir. 1983). See MPEP 2113.

With regard to the limitations "in the presence of alkenylsuccinic anhydride" and "in the presence of alkyldiketene" in the process claims, while Chiba et al. teach the addition of high pressure emulsified alkylketene dimer subsequent to high pressure polymerization of styrene-containing monomer mixtures, it would have been obvious to one of ordinary skill in the art to include the alkenylsuccinic anhydride and/or alkyldiketene sizing agents during emulsion polymerization of monomers of Chiba et al. because such a process would afford a homogeneous distribution of the sizing agent(s) and the copolymer in the aqueous dispersions. As such, selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results In re Burhans, 154 F.2d 690, 69 USPQ, 330 (CCPA 1946).

With regard to claim 14, it would have been obvious to one skilled in the art to optimize the polymerization conditions and arrive at the presently cited claim, absent evidence of criticality of the claimed range. Differences in concentration or temperature will not support patentability of the subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. MPEP 2144.05.

9. Claims 6, 9, 11, 13, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiba et al. (JPH4-100994) in view of Dames et al. (US 5,990,221) and Akimoto et al. (US 5,190,616) and further in view of Pfalz et al. (WO 01/29091).

The discussions with regard to Chiba et al., Dames and Akimoto et al. above in paragraph 8 are incorporated herein reference.

The prior art fails to disclose a polymerization process in the presence of water-soluble or water-swellable starch.

With regard to Pfalz et al. reference, it is noted that WO 01/29091 is used for date purposes while US 6,800,675 is used as the equivalent in the rejection set forth below.

The prior art to Pfalz et al. discloses emulsion copolymerization method in which starch in a preferably modified and/or derivatized form, optionally along with other emulsifiers or auxiliary agents is used to stabilize the emulsion (col. 1, lines 5-13, col. 4, lines 29-58). The emulsion polymerization of a variety of monomers conducted in the presence of starch and/or its degradation products afford aqueous dispersions that are cost beneficial (col. 1, lines 5-34, col. 2-3, bridging paragraph). In light of such benefit, and given that Dames discloses mini-emulsion

processes in the presence of protective colloids, it would have been obvious to one of ordinary skill in the art to include degraded starch as protective colloid during polymerization of monomers as taught by Pfalz et al. in mini-emulsion processes of Dames to prepare Chiba et al. aqueous dispersions and thereby arrive at the presently cited claims.

With regard to the temperatures recited in claim 11, it would have been obvious to one skilled in the art to optimize the polymerization conditions and arrive at the presently cited claim, absent evidence of criticality of the claimed range. Differences in concentration or temperature will not support patentability of the subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. MPEP 2144.05.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 31-39, 42-53, 56-60 of copending application no. 10/529,782 (referred to as '782, published as US 20060009571 A1, amended 5/11/09) to Dyllick-Brenzinger et al. in view of Akimoto et al. (US 5,190,616).

Copending claims 1, 8 of '782 recite aqueous dispersions of (co)polymers of at least one hydrophobic monomer prepared by mini-emulsion polymerization in the presence of alkyldiketene and process of preparing the same, respectively.

The copending claims fail to recite polymerization in the presence of alkenylsuccinic anhydride.

It is noted the presently cited claims include the term "comprising" and thus are open to additional components in the composition. Secondary reference to Akimoto reference discloses sizing agents comprising copolymers and alkenylsuccinic anhydrides or alkylketene dimers as reactive sizing agents (abstract). The disclosure teaches that alkenylsuccinic anhydrides and alkylketene dimers are known reactive sizing agents usable in paper industry (col. 1, lines 10-15), in other words, the disclosure teaches that the two sizing agents are functionally equivalent and interchangeable. As such, it would have been obvious to one of ordinary skill in the art to utilize the functionally equivalent sizing agents, i.e. alkylketene dimers or alkenylsuccinic anhydride or a combination of both in preparing aqueous dispersions of modified Chiba et al. and thereby arrive at the presently cited claims. Case law holds that the selection of a known material

based on its suitability for its intended use supports *prima facie* obviousness. *Sinclair & Carroll Co vs. Interchemical Corp.,* 325 US 327, 65 USPQ 297 (1045).

It is also well settled that it is prima facie obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. *In re Lindner* 457 F,2d 506,509, 173 USPQ 356, 359 (CCPA 1972). Also, case law holds that "it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In re Kerkhoven,* 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claims 1-17 are directed to an invention not patentably distinct from claims 31-39, 42-53, 56-60 of copending application no. 10/529,782 (published as US 20060009571 A1, amended 5/11/09) to Dyllick-Brenzinger et al.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned copending application 10/529,782 would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this

issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satya Sastri at (571) 272 1112. The examiner can be reached on Mondays, Thursdays and Fridays, 7AM-5.30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. David Wu can be reached on 571-272-1114.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Satya B Sastri/

Examiner, Art Unit 1796